



Archiving and Georeferencing Preliminary and Recorded Plats and/or Surveys for Qualitative Review and Historic Preservation

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OVERVIEW OF THE PUBLIC LAND SURVEY SYSTEM



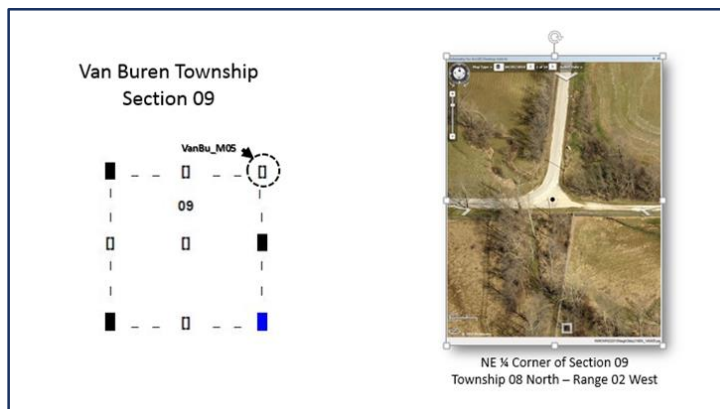
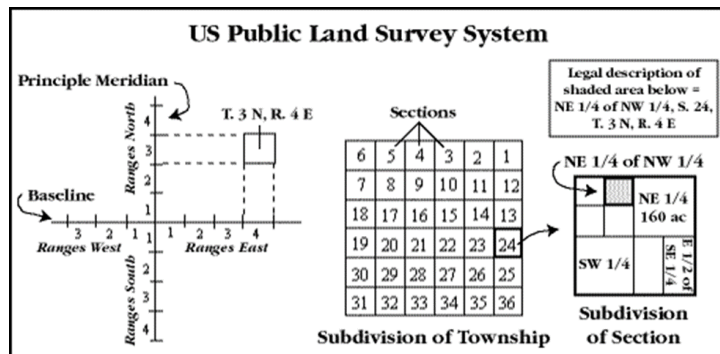
THE PUBLIC LAND SURVEY SYSTEM (PLSS)



Townships, Ranges & Monument Corners

General understanding/description:

- The first step in the original survey process was to run a baseline and a principal meridian to be used as an x and y axis for accurately describing each parcel of land. The next step was to run a north-south range line every 6 miles. Next, the grid of township and range lines was further divided into 36 sections.
- The original section corners and section lines are the framework for property descriptions for our entire state. Section corners are used to establish and retrace property boundaries.





GIS RESOURCES TO ENSURE CONSISTENCY



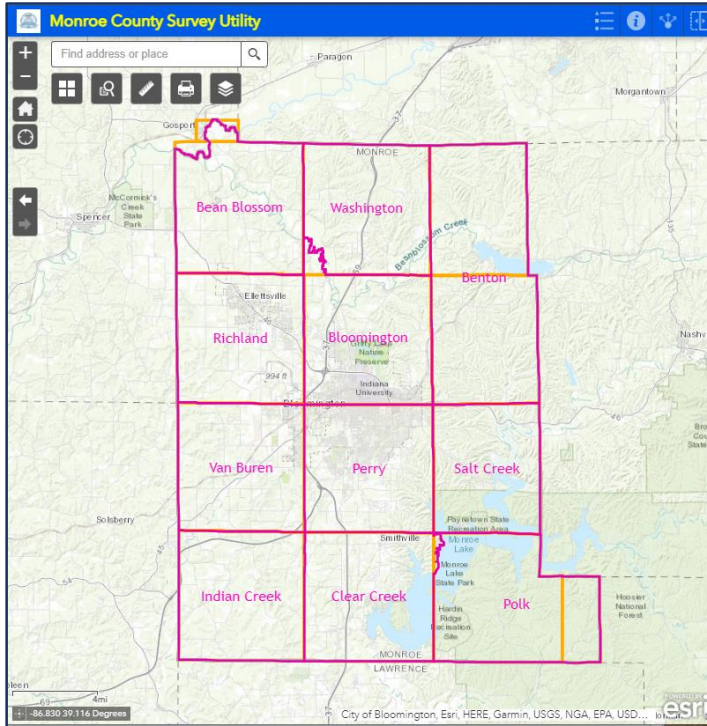
MONROE COUNTY SURVEY UTILITY



Intergrading GIS into Public Land Survey System

Topology, Geodatabases, and Hyperlinks:

- Starting with point location data on the section corner monuments that our Office has collected over the last 20 years. The locations are of varying quality, very little of it is survey grade. Then ran an ArcMap model that connected the section lines to our section corner points, generated feature class polygons, and incorporated topology into the geodatabase layers so if we get a more accurate location of a point and need to adjust it, the section lines and polygons are automatically adjusted.
- Our next step was to integrate fields from the Reference Survey database such as corner id, corner name, Section Number, and Township, as well as the Internet Archive hyperlinks.



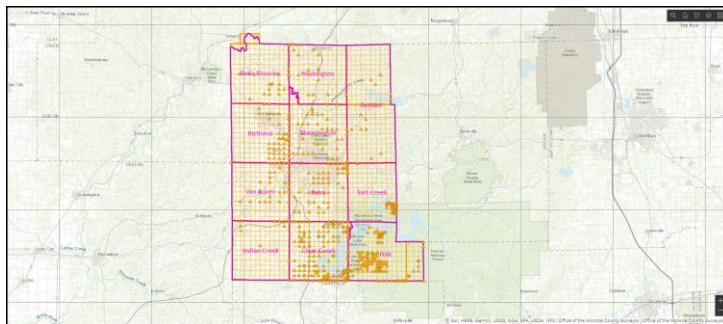
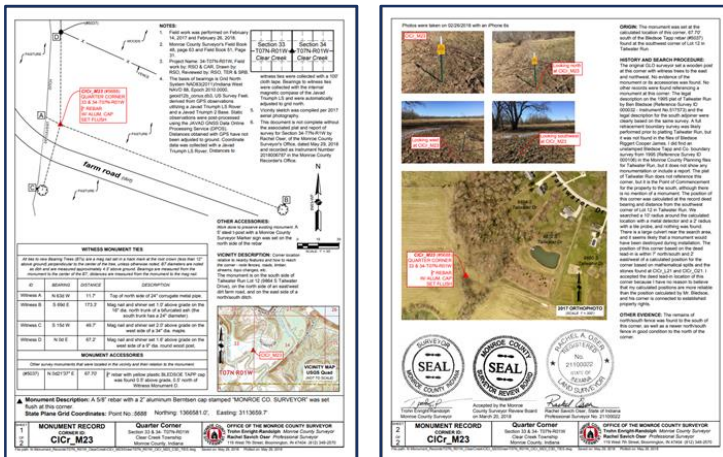
MONUMENT RECORDS, SECTION LINES, & TOWNSHIPS



Coordinate Grade

Maintained & Collected Locations:

- Once a tie sheet has been created, you will now have a well-organized and neatly constructed document showing all the necessary information used in order to review the our Public Land Survey System Monument Corner records.
- Monument Comer records and survey-related records can now be accessed and displayed on GIS program more easily online or via mobile device.
- The lines and corners represented by GIS do not represent legal boundaries. Users should not rely on them for any purpose other than a low-accuracy approximation of the location of lines or corners. They are of limited precision and are simply graphic representations developed for the county's limited purposes. By law, the legal boundaries of a parcel are a function of (1) the law, (2) evidence on the ground, and (3) the written deed description or subdivision plat. Only a registered land surveyor is trained and licensed to locate boundary lines.





PRELIMINARY PLAT REVIEW (LIVE DEMO)



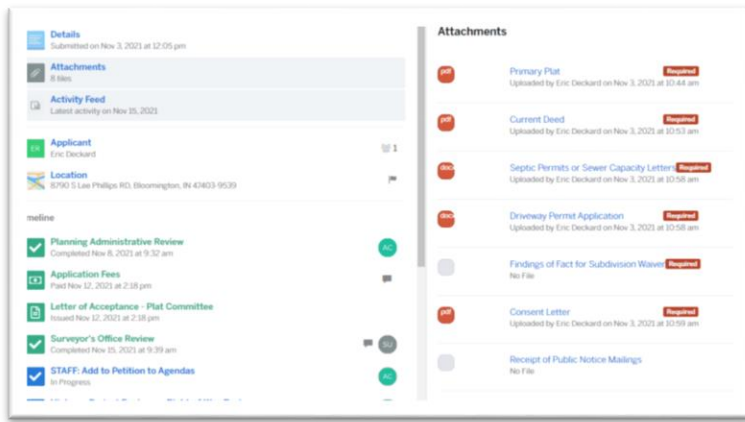
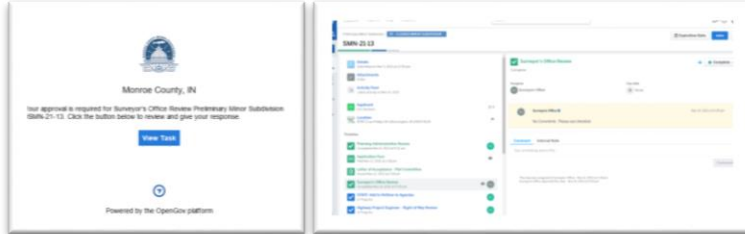
PRELIMINARY PLAT REVIEW (LIVE DEMO)



Email Notification(s)

OpenGov Web Permitting Software:

- Emails are generated by the OpenGov software whenever Monroe County Planning creates a new project and alerts the other County Agencies that participates in the review of a Plat.
- The area of interest for the Surveyor's Office is the preservation and authentication of the corner monuments in the Public Land Survey System.
- The emails go to surveyoroffice@co.monroe.in.us; a email account where the entire office can access OpenGov to download the plat and related documents.



PRELIMINARY PLAT REVIEW (LIVE DEMO)



Plat Download & Organization

G Drive, Folder & Pathways Standardization:

- The Preliminary Plats and other related documents are housed in a G Drive that is a dedicated server for GIS purposes. Folder references use universal naming conventions (e.g., \\domain\) for continuity.
- Create a new Plat review project folder following a standard naming format; like using underscores where a blank space would otherwise be.
- After creating the project folder copy and pasting the file-tree folder within to the folder you created for review.

↑ > Network > ARCSERVER > g > GIS Data > Surveyor > Preliminary_Plat_Review > 2021_Preliminary_Plat_Review

Emerald_Trace_Preliminary_Plat	7/16/2021 10:29 AM	File folder
Fleener_Minor_Subdivision_Preliminary_Plat	11/15/2021 8:16 AM	File folder
Flynn-Patrias_Type_E_Administrative_Subdivision	9/13/2021 2:30 PM	File folder

1stDraft	1/4/2018 8:16 AM	File folder
GeoreferencingPlat	7/22/2021 3:04 PM	File folder
MCSO Comments	7/14/2021 9:33 AM	File folder
Reference	1/4/2018 8:27 AM	File folder

PRELIMINARY PLAT REVIEW (LIVE DEMO)



InCr_H15

P.O.B. (A) ↙
"1/2" Rebar Found
NW Corner NE 1/4 of SE 1/4
of Section 20, T7N, R2W

REFERENCE MONUMENTS:

A). A 1/2 inch diameter rebar was found 2 inches above grade marking the Northwest corner of the Northeast Quarter of the Southeast Quarter of said Section 20, Township 7 North, Range 2 West. This monument was found to be referenced in several surveys in the area and was accepted and held as said corner. The record versus measured distance between this monument and the monument described in line "Q" is 1320.00 feet versus 1323.66 feet respectively.

Consistency of the Public Land Survey System (PLSS)

Temping up the Plat & GIS resources

- Identify/Temp up the Monument Corners on the Plat being reviewed using our unique Corner_ID naming format with the comment tool in Adobe Acrobat.
- Check the consistency of the Plat's PLSSS Monument Corner references with our Survey Utility.


PRELIMINARY PLAT REVIEW (LIVE DEMO)



Consistency of the Public Land Survey System (PLSS)

MCSO Plat Review Checklist

- Fill out all the fields highlighted. This information is on the Plat/Survey and in the OpenGov project task.
- If the Plat's Monument Corners align with our records, check the top box.
- If there are discrepancies, check the middle box, type comments in the open area and reach out to the Plat's surveyor to share our remarks and/or concerns.
- If there is no items that relate the PLSS, hit the Not Applicable box.
- Once the comment sheet is filled out, save it and upload it to the OpenGov Attachment page.

 **Office of the Monroe County Surveyor**
Tasha Earlight-Randolph
Health Services Building
119 West 7th Street
Bloomington, IN 47404
Phone: (812) 349-2570
surveyorsoffice@co.monroe.in.us

Plat Review Checklist*

Firm and Professional Surveyor: Deckard Land Surveyor / Eric L. Deckard
Planner: Anne Crecelius Monroe County Planning Dept. ID: SMN-21-13
Subdivision Name: Fleener_Minor_Subdivision_Preliminary_Plat
Date Received: 11/12/21 Date Review Completed: 11/15/21 Reviewer: Jason George

☒ Public land survey corners referenced are consistent with Monroe County Surveyor's records; or

☐ Discrepancies were noted between public land survey corners shown on this plat and Monroe County Surveyor's records. Please contact the Monroe County Surveyor's Office at 812-349-2570 or surveyorsoffice@co.monroe.in.us; or

☐ Not applicable, no comments

* This plat was not reviewed for compliance with local subdivision and zoning ordinances or with 865 IAC 1-12-13 for retracement or record document survey plats. Public land survey corners referenced on this plat were reviewed for consistency with Monroe County Surveyor's records per 865 IAC 1-12-30 (c).

Save Date: 2018-10-22 Print Date: 2018-10-22
N:\Montage_Review_Compliance_865\Commissioner Monroe County Plat, Commissioner Surveyor Plat Review Review Standards PlatReviewChecklist_20181022.docx

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PRELIMINARY PLAT REVIEW (LIVE DEMO)



Georeferencing Plat

Converting Plat document to a TIFF

- Open the GeoreferencingPlat folder in your file tree.
- Save your Plat down as a TIFF in this folder. If there are multiple pages, you can delete the unused portions with text and rename the drawing portion to match the plat and the folder.
- Now go to Preliminary_Georeferencing_Data folder and open the project file Preliminary_MCS_Plat_Review.aprx
- Please be aware that this is only a template, so save it exactly as your Plat is named in the GeoreferencingPlat subfolder.

Name	Date modified	Type	Size
1stDraft	11/15/2021 9:30 AM	File folder	
GeoreferencingPlat	11/15/2021 9:58 AM	File folder	
MCSO Comments	11/15/2021 9:31 AM	File folder	
Reference	1/4/2018 8:27 AM	File folder	

Name	Date modified	Type	Size
2016_Preliminary_Plat_Review	7/14/2021 9:18 AM	File folder	
2017_Preliminary_Plat_Review	7/14/2021 9:22 AM	File folder	
2018_Preliminary_Plat_Review	7/14/2021 9:26 AM	File folder	
2019_Preliminary_Plat_Review	7/14/2021 9:30 AM	File folder	
2020_Preliminary_Plat_Review	8/4/2021 8:04 AM	File folder	
2021_Preliminary_Plat_Review	11/15/2021 8:15 AM	File folder	
Plat_Georeferencing_Data	8/2/2021 8:30 AM	File folder	
Preliminary_Georeferencing_Data	11/15/2021 9:42 AM	File folder	
Review Standards	7/14/2021 9:35 AM	File folder	

Name	Date modified	Type	Size
Index	11/15/2021 9:43 AM	File folder	
Preliminary_MCS_Plat_Review.gdb	11/15/2021 12:29 PM	File folder	
Preliminary_MCS_Plat_Review.aprx	11/9/2021 12:25 PM	ArcGIS Project File	177 KB
Preliminary_MCS_Plat_Review.lyrx	11/2/2021 12:55 PM	ArcGIS Pro Layer F...	16 KB

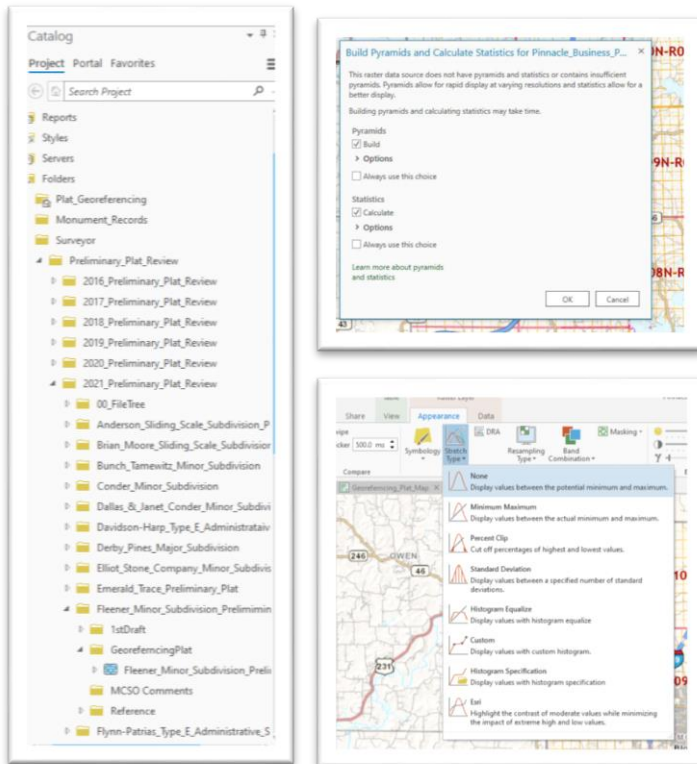
PRELIMINARY PLAT REVIEW (LIVE DEMO)



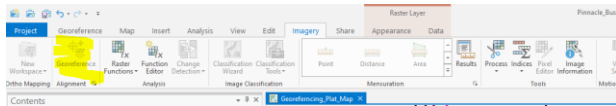
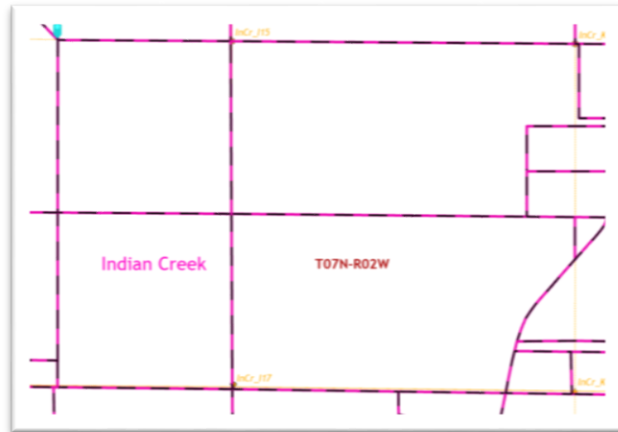
Georeferencing Plat

Adding TIFF document to ArcPro

- Open catalog in the ArcPro; Browse to the folder where the TIFF file is and add it to the content panel.
- Allow it to Build a Pyramid but just for this project.
- Go to Appearance on your ribbon. In Appearance Tab change stretch type to None.



PRELIMINARY PLAT REVIEW (LIVE DEMO)



Georeferencing Plat

Adding TIFF document to ArcPro

- Using what you know about area of interest, Zoom to location.
- With your TIFF still selected, go to Imagery Tab and Select Georeference.
- Select "Fit to Display" this will bring your Tiff Document in at extents

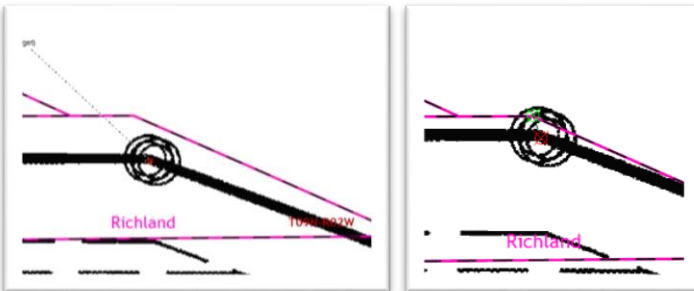
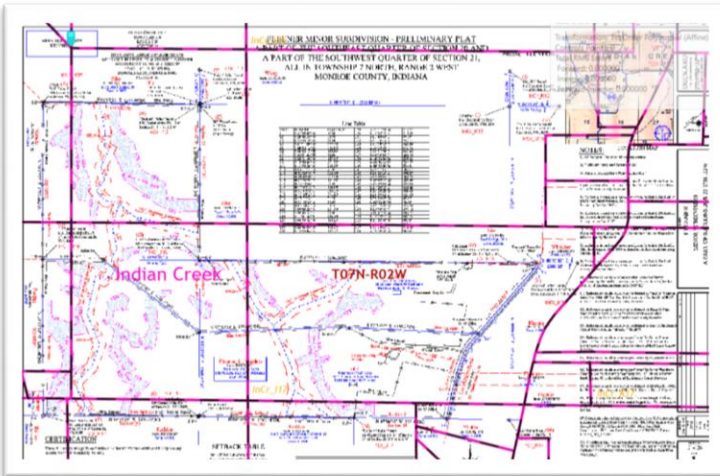
PRELIMINARY PLAT REVIEW (LIVE DEMO)



Georeferencing Plat

Adding Control Points to TIFF

- It may take a moment to orient the new plat to the undeveloped map, but you can use parcel shapes, streets and distances from section corners to get you close.
- Once you know where you want to begin, select Add Control Points
- Select a Vector on your plat and then select a point on your map



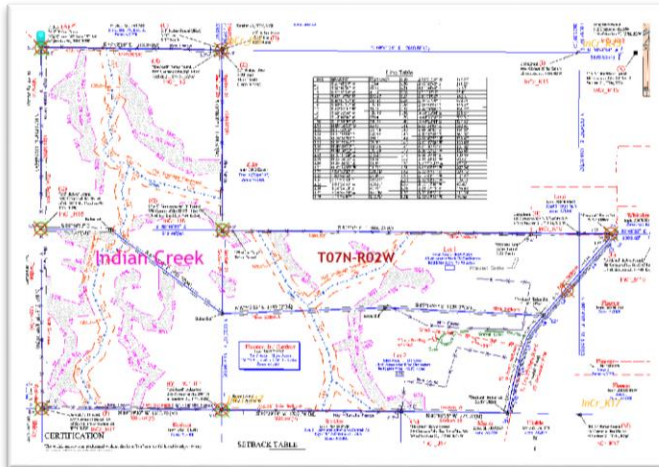
PRELIMINARY PLAT REVIEW (LIVE DEMO)



Georeferencing Plat

Adding Control Points to TIFF

- Inconsistencies in the parcel layer may not allow a perfect fit but it will still be an accurate representation for our purposes.
- Go around your Plat and associate vector points with the map.
- Too many points may make the plat too oblong, while too few control points, may not anchor your plat sufficiently
- With the Control Point Table Open, all or select points can be engaged, turned off or deleted:
- Once your Plat is Georeferenced Save and Close Georeference



Link	Source X	Source Y	X Map	Y Map	Residual X	Residual Y	Residual
2	7.511228	13.699828	3,094,631.567872	1,429,758.488857	-1.891623	-7.250184	7.668915
3	17.848454	10.794796	3,096,582.355640	1,428,675.342548	-3.212157	-6.795254	5.388950
4	24.720946	20.170147	3,096,777.417285	1,430,155.186262	10.813232	-14.763880	18.182332
5	20.835292	25.520880	3,096,293.360127	1,430,280.360254	5.157229	0.097317	5.158180
6	12.873731	8.928289	3,095,213.477461	1,428,583.340388	5.884548	5.749166	6.728209
7	17.100756	9.768830	3,095,787.858420	1,428,455.123736	-2.807084	-5.153888	5.779484
8	16.511626	9.768837	3,095,724.247713	1,428,411.228103	-0.108275	-6.417632	6.418362



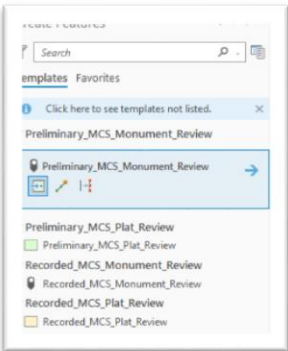
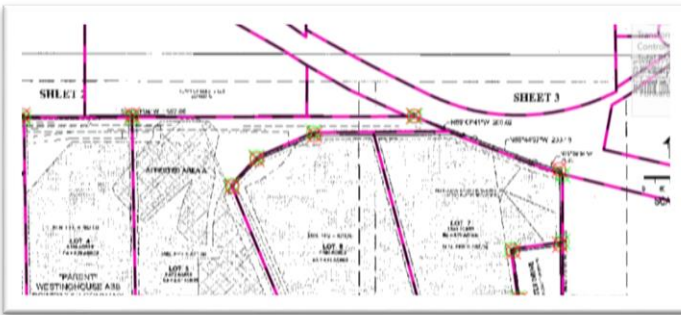
PRELIMINARY PLAT REVIEW (LIVE DEMO)



Georeferencing Plat

Adding Features

- Starting with Monument Review.
- Go to Create Features Tab in your Catalog and set your point layer monument marker as the Plat indicates.
- Fill out the fields in the attribute table
- After your monuments are all established, you can work on your area of interest. These are Easements, Conservatories, Infrastructure, etc.
- Once again go to your Create Features Tab and Select Preliminary_MCS_Plat_Review
- The Polygon Feature is a good tool for most Areas of Interest and begin drawing to each vector indicated on the plat.



QUESTIONS?

